THAT WHICH IS CLAIMED IS:

1. A phased array antenna comprising:

a substrate; and

a patterned conductive layer on said substrate and defining a plurality of slotted dipole antenna elements each having a medial feed portion associated therewith, each slotted dipole antenna element comprising a pair of slotted legs extending outwardly from the medial feed portion, pairs of adjacent slotted legs of adjacent slotted dipole antenna elements including respective spaced apart end portions having predetermined shapes and relative positioning to provide increased inductive coupling between the adjacent slotted dipole antenna elements.

2. A phased array antenna according to Claim 1 wherein the legs of a pair thereof are coupled at the medial feed portion to define a continuous slot.

3. A phased array antenna according to Claim 1 wherein each slotted leg includes an elongated slotted body portion, and an enlarged slotted width end portion at an end of the elongated slotted body portion.

4. A phased array antenna according to Claim 1 wherein the spaced apart end portions in adjacent slotted legs include interdigitated portions.

5. A phased array antenna according to Claim 4 wherein each slotted leg includes an elongated slotted body portion, an enlarged slotted width end portion

connected at an end of the elongated slotted body portion, and a plurality of slotted fingers extending outwardly from the enlarged slotted width end portion.

6. A phased array antenna according to Claim 1 wherein the phased array antenna has a desired frequency range; and wherein the spacing between the end portions of adjacent slotted legs is less than about one-half a wavelength of a highest desired frequency.

7. A phased array antenna according to Claim 1 wherein said plurality of slotted dipole antenna elements comprise first and second sets of orthogonal slotted dipole antenna elements to provide dual polarization.

8. A phased array antenna according to Claim 1 further comprising a ground plane adjacent said plurality of slotted dipole antenna elements.

9. A phased array antenna according to Claim 8 wherein the phased array antenna has a desired frequency range; and wherein said ground plane is spaced from said plurality of slotted dipole antenna elements less than about one-half a wavelength of a highest desired frequency.

10. A phased array antenna according to Claim 1 wherein said plurality of slotted dipole antenna elements are arranged at a density in a range of about 100 to 900 per square foot.

11. A phased array antenna according to Claim 1 wherein said plurality of slotted dipole antenna elements are sized and relatively positioned so that the phased array antenna is operable over a frequency range of about 2 to 30 GHz.

12. A phased array antenna according to Claim 1 wherein said plurality of slotted dipole antenna elements are sized and relatively positioned so that the phased array antenna is operable over a scan angle of about $\pm$ 60 degrees.

13. A phased array antenna according to Claim 1 further comprising at least one dielectric layer adjacent said patterned conductive layer.

14. A phased array antenna according to Claim 1 further comprising a respective impedance element electrically connected to said patterned conductive layer between the spaced apart end portions of adjacent slotted legs of adjacent slotted dipole antenna elements to further increase the inductive coupling therebetween.

15. A phased array antenna according to Claim 1 further comprising a respective printed impedance element adjacent the spaced apart end portions of adjacent slotted legs of adjacent slotted dipole antenna elements to further increase the inductive coupling therebetween.

16. A phased array antenna comprising:

a patterned conductive layer defining an array of slotted dipole antenna elements each having a medial feed portion associated therewith, each slotted dipole antenna element comprising a pair of slotted legs extending outwardly from the medial feed portion, and pairs of adjacent slotted legs of adjacent slotted dipole antenna elements including respective spaced apart end portions having predetermined shapes and relative positioning to provide increased inductive coupling between the adjacent slotted dipole antenna elements; and

a ground plane adjacent said plurality of slotted dipole antenna elements.

17. A phased array antenna according to Claim 16 wherein the legs of a pair thereof are coupled at the medial feed portion to define a continuous slot.

18. A phased array antenna according to Claim 16 wherein each slotted leg includes an elongated slotted body portion, and an enlarged slotted width end portion at an end of the elongated slotted body portion.

19. A phased array antenna according to Claim 16 wherein each slotted leg includes an elongated slotted body portion, an enlarged slotted width end portion connected at an end of the elongated slotted body portion, and a plurality of slotted fingers extending outwardly from the enlarged slotted width end portion.

20. A phased array antenna according to Claim 16 wherein the phased array antenna has a desired frequency range; and wherein the spacing between the end

portions of adjacent slotted legs is less than about one-half a wavelength of a highest desired frequency.

21. A phased array antenna according to Claim 16 wherein said plurality of slotted dipole antenna elements comprise first and second sets of orthogonal slotted dipole antenna elements to provide dual polarization.

22. A phased array antenna according to Claim 16 wherein the phased array antenna has a desired frequency range; and wherein said ground plane is spaced from said plurality of slotted dipole antenna elements less than about one-half a wavelength of a highest desired frequency.

23. A phased array antenna according to Claim 16 wherein said plurality of slotted dipole antenna elements are arranged at a density in a range of about 100 to 900 per square foot.

24. A phased array antenna according to Claim 16 wherein said plurality of slotted dipole antenna elements are sized and relatively positioned so that the phased array antenna is operable over a frequency range of about 2 to 30 GHz.

25. A phased array antenna according to Claim 16 further comprising at least one dielectric layer adjacent said patterned conductive layer.

26. A phased array antenna according to Claim 16 further comprising a respective impedance element electrically connected to said patterned conductive layer between the spaced apart end portions of adjacent slotted legs of adjacent slotted dipole antenna elements to further increase the inductive coupling therebetween.

27. A phased array antenna according to Claim 16 further comprising a respective printed impedance element adjacent the spaced apart end portions of adjacent slotted legs of adjacent slotted dipole antenna elements to further increase the inductive coupling therebetween.

28. A method for making a phased array antenna comprising:

providing a patterned conductive layer; and

defining a plurality of slotted dipole antenna elements in the patterned conductive layer, each slotted dipole antenna element having a medial feed portion associated therewith and comprising a pair of slotted legs extending outwardly from the medial feed portion, and defining the plurality of slotted dipole antenna elements includes shaping and positioning respective spaced apart end portions of adjacent slotted legs of adjacent slotted dipole antenna elements to provide increased inductive coupling between the adjacent slotted dipole antenna elements.

29. A method according to Claim 28 wherein the legs of a pair thereof are coupled at the medial feed portion to define a continuous slot.

30. A method according to Claim 28 wherein each slotted leg includes an elongated slotted body portion, and an enlarged slotted width end portion at an end of the elongated slotted body portion.

31. A method according to Claim 28 wherein each slotted leg includes an elongated slotted body portion, an enlarged slotted width end portion connected at an end of the elongated slotted body portion, and a plurality of slotted fingers extending outwardly from the enlarged slotted width end portion.

32. A method according to Claim 28 wherein the phased array antenna has a desired frequency range; and wherein the spacing between the end portions of adjacent slotted legs is less than about one-half a wavelength of a highest desired frequency.

33. A method according to Claim 28 wherein defining the plurality of slotted dipole antenna elements comprise defining first and second sets of orthogonal slotted dipole antenna elements to provide dual polarization.

34. A method according to Claim 28 wherein the phased array antenna has a desired frequency range; and further comprising forming a ground plane spaced from the plurality of slotted dipole antenna elements less than about one-half a wavelength of a highest desired frequency.

35. A method according to Claim 28 wherein the plurality of slotted dipole antenna elements are arranged at a density in a range of about 100 to 900 per square foot.

36. A method according to Claim 28 wherein the plurality of slotted dipole antenna elements are sized and relatively positioned so that the phased array antenna is operable over a frequency range of about 2 to 30 GHz.

37. A method according to Claim 28 further comprising forming at least one dielectric layer adjacent the patterned conductive layer.

38. A method according to Claim 28 further comprising electrically connecting a respective impedance element to the patterned conductive layer between the spaced apart end portions of adjacent slotted legs of adjacent slotted dipole antenna elements to further increase the inductive coupling therebetween.

39. A method according to Claim 28 further comprising forming a respective printed impedance element adjacent the spaced apart end portions of adjacent slotted legs of adjacent slotted dipole antenna elements to further increase the inductive coupling therebetween.